

Work Order ID 164449

Wednesday, July 19, 2017 2:35:08 AM

164449

Page 1

Item ID: D2574

Revision ID:

Item Name: Saddle, Aft, In

Start Date: 7/27/2017 Start Qty: 4.00

Required Date: 8/9/2017 Req'd Qty: 4.00

Reference:

Accept

N900040100Setup Start ***NS1***Stop ***NS2***

Cust Item ID:

Customer:

Approvals:

Process Plan:

Date:

Date:

Tooling:

Date:

SPC (Y/N):

Date:

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D2574	F

100

2.08

100

HAAS 1

HAAS CNC vertical machine #1

HAAS CNC VERTICAL MACHINING #1

Memo

Program Batch No. 164449Double check by: mmh

1-Machine Step No 1 per Folio FA051 and inspect per attached Dimension Sheets

2-Machine Step No 2 per Folio FA051 and inspect per attached Dimension Sheets

3-Machine Step No 3 per Folio FA051 and insp

110

0.00

110

Mill Conv

Conventional Milling Machine

CONVENTIONAL MILLING MACHINE

Memo

Machine keyway as per dwg D2573 & D2574

DAS
44
9-89

17-07-28

PTO →

DAS
44
9-89

17-07-29

QA Closed: 17-10-31 Date: 17-10-31
 Date: AUG - 9 2017

WORK ORDER NON-CONFORMANCE / UPDATE



Work Order update only ☐

Work Order: <u>16449</u> Part No. <u>D2574</u> NCR No. <u>17-6582</u>	DISPOSITION Rework ☐ Scrap ☒ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☒</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																
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Date: <u>17-07-29</u>	Step #: <u>100</u>	QTY Effective: <u>1</u>	MRB (QSI042) Approval DAS 9 9-89 <u>170731</u>																																																																	
Description Work Order Deviation Entered wrong tool offset for the ball mill in the last opp it is .100" to deep P.C. operator enter wrong number		Disposition Scrap and Replace <u>B 159704</u>		Completed By DAS 44 9-89 <u>17-07-29</u> Lead hand / Supervisor Approval Verification DAS 14 9-89 <u>17/08/01</u> QC / QA Coordinator Approval DAS 9 9-89 <u>170731</u>																																																																
Root Cause <table style="width:100%;"> <tr><td>Environment</td><td>☒ No Re-verification</td></tr> <tr><td>Design</td><td>☐ Operator</td></tr> <tr><td>Doc/Data</td><td>☐ Offset/Setup</td></tr> <tr><td>Equip/Tooling</td><td>☐ Supplier</td></tr> <tr><td>Handling/Pre</td><td>☐ Training</td></tr> <tr><td>Material</td><td>☐ Use for Testing</td></tr> <tr><td>Internal Transport</td><td>☐ Poor Information</td></tr> <tr><td>Tribal Knowledge</td><td>☐ Rushing</td></tr> <tr><td>LOA</td><td>☐ Product Improvement</td></tr> <tr><td>Substation</td><td>☐ Process Improvement</td></tr> <tr><td>Past Expiry Date</td><td>☐ Manufacturing Process</td></tr> <tr><td>Misidentified</td><td>☐ Past Due</td></tr> </table>		Environment	☒ No Re-verification	Design	☐ Operator	Doc/Data	☐ Offset/Setup	Equip/Tooling	☐ Supplier	Handling/Pre	☐ Training	Material	☐ Use for Testing	Internal Transport	☐ Poor Information	Tribal Knowledge	☐ Rushing	LOA	☐ Product Improvement	Substation	☐ Process Improvement	Past Expiry Date	☐ Manufacturing Process	Misidentified	☐ Past Due	FAULT CATEGORY <table style="width:100%;"> <tr> <td>☒ Pressure/Forced</td> <td>☐ Temperature/Cure</td> <td>☐ Power Loss/Surge</td> <td>☐ Positioned Wrong</td> </tr> <tr> <td>☐ Bending</td> <td>☐ Set-up</td> <td>☐ Folio/Program</td> <td>☐ Outside Dimensions</td> </tr> <tr> <td>☐ Centre Not Concentric</td> <td>☐ BOM/Route</td> <td>☐ Grain</td> <td>☐ Over/Under tolerance</td> </tr> <tr> <td>☐ Cracks</td> <td>☐ Broken/Damage/Defect</td> <td>☐ Weld</td> <td>☐ Part Incorrect</td> </tr> <tr> <td>☐ Crimp/Kink/Ripple/Wave</td> <td>☐ Inspection Incomplete/Unqualified</td> <td>☐ Wrong Stock Pulled</td> <td>☐ Part Lost/Missing</td> </tr> <tr> <td>☐ Cuffs</td> <td>☐ Contamination</td> <td>☐ Out of Sequence</td> <td>☐ Part Moved</td> </tr> <tr> <td>☐ Crushing</td> <td>☐ Countersink</td> <td>☐ Off-set</td> <td>☐ Drawing</td> </tr> <tr> <td>☐ Heat Treat</td> <td>☐ Cut Too Short</td> <td>☐ Mislabeled</td> <td>☐ Finish</td> </tr> <tr> <td>☐ Wave/Twist in Tube</td> <td>☐ Instructions Incomplete/Unclear</td> <td>☐ Fit/Function</td> <td>☐ Misread</td> </tr> <tr> <td>☐ Marks/Chatter</td> <td>☐ Drill Holes</td> <td>☐ Misaligned/off center</td> <td>☐ Turning Sequence</td> </tr> </table>			☒ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence
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164449

Page 2

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Revision ID: Stop ***NS2***
Item Name: Saddle, Aft, In
Start Date: 7/27/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 8/9/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.04				<u>6</u>	<u>1</u>		DAS 44 9-89 17-07-20
130 *130* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.08				<u>6</u>	<u>0</u>		DAS 49 9-89 17/08/01
140 *140* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.34				<u>6</u>	<u>0</u>		2017/08/02 JSL BER.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
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Page 3

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 Required Date: 8/9/2017 Req'd Qty: 4.00 ***4*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150 *150* Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum <i>M 13804</i> Memo START TIME: <i>2:25</i> OVEN TEMPERATURE: <i>300</i> FINISH TIME: <i>2:55</i>	0.00 0.08				<i>6</i>	<i>0</i>	<i>17-08-2</i>	<i>34</i>
160 *160* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.04				<i>6</i>			<i>DAS 38 9-89</i> <i>AUG 03 2017</i>
170 *170* Packaging Packaging	Identify as per dwg & Stock Location <i>ST398</i> Memo	0.00 0.04			<i>DAS 26 9-89</i>	<i>6</i>		<i>AUG 04 2017</i>	<i>pl</i>

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Root Cause		FAULT CATEGORY																							
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Work Order ID 164449

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Page 4

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Revision ID: Stop ***NS2***
Item Name: Saddle, Aft, In
Start Date: 7/27/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 8/9/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	QC21 - Final Inspection - Work Order Release	0.00							
180									
QC	Memo	0.40							
Quality Control									

AUG 04 2017

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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OTHER : ☐									

Picklist Print

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Page 1
T

Work Order ID: 164449

164449

Parent Item: D2574

D2574

Parent Item Name: Saddle, Aft, In

Start Date: 7/27/2017

Required Date: 8/9/2017

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP Rev: I As Per RevE 06-01-27 JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-005 *D6101-005* Saddle Billet		Manufactured	No			110	Each	20.0000	1	4			
										**			
												DAS	
												44	
												9-89	
												17-07-29	

Location

Loc Qty

Loc Code

MAT041

20

159704

20

46 + 1

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Misidentified ☐	Past Due ☐																																																																

DART AEROSPACE LTD	Work Order: 164449
Description: Saddle, Aft Inboard	Part Number: D2574
Inspection Dwg: D2574 Rev. F	Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2574 Rev. E and record below:

				Recorded Actual Dimensions				By	Date
Dim	Min	Max	Go/No Go Gauge	1	2	3	4		
A	0.438	0.443		.438	.438	.438	.438		
B	1.745	1.755		1.750	1.750	1.750	1.750		
C	3.495	3.505		3.500	3.500	3.500	3.500		
D	1.745	1.755		1.750	1.750	1.750	1.750		
E	7.990	8.010		8.001	8.002	8.002	8.002		
F	0.490	0.510		.497	.500	.500	.500		
G	0.257	0.262		.258	.258	.258	.258		
H	0.375	0.380		.375	.375	.375	.375		
I	0.490	0.510		.503	.503	.503	.503		
J	1.174	1.184		1.179	1.179	1.179	1.179		
K	0.558	0.578		.570	.571	.569	.570		
L	1.174	1.184		1.179	1.179	1.179	1.179		
M	1.365	1.375		1.370	1.370	1.370	1.370		
N	2.495	2.505		2.500	2.500	2.500	2.500		
O	4.119	4.129		4.124	4.125	4.124	4.124		
P	0.115	0.135		.130	.130	.130	.130		
Q	0.115	0.135		.127	.126	.126	.125		
R	0.240	0.260		.253	.253	.253	.254		
S	0.115	0.135		.125	.126	.127	.126		
T	0.178	0.198		.188	.188	.188	.188		
U	3.210	3.250		3.230	3.230	3.231	3.230		
V	0.230	0.250		.244	.244	.243	.242		
W	0.115	0.135		.125	.124	.124	.123		
X	0.307	0.312		.311	.311	.311	.311		
Y	0.760	0.765		.760	.760	.760	.760		
Z	0.352	0.372		.365	.365	.365	.365		
AA	0.470	0.530		.500	.500	.500	.500		
AB	0.615	0.635		.626	.625	.625	.626		
AC	0.053	0.073		.063	.063	.063	.063		
AD	0.240	0.260		.254	.254	.254	.252		
AE	1.500	1.520		1.510	1.510	1.510	1.510		
AF	0.115	0.135		.135	.135	.135	.135		
AG	0.240	0.280		.260	.260	.260	.260		
AH	0.240	0.260		.252	.250	.250	.250		
AI	2.000	2.020		2.000	2.000	2.000	2.000		
AJ	0.023	0.043		.033	.033	.033	.033		
Accept/Reject				✓	✓	✓	✓		

Measured by: 44	Audited by: 49
Date: 17-07-29	Date: 9-89 17/08/01

Rev	Date	Change	Revised by	Approved
B	02.09.27	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	
F	13.03.07	Dwg Rev updated	KJ	

DART AEROSPACE LTD	Work Order: 164449
Description: Saddle, Aft Inboard	Part Number: D2574
Inspection Dwg: D2574 Rev. F	Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2574 Rev. E and record below:

				Recorded Actual Dimensions				By	Date
Dim	Min	Max	Go/No Go Gauge	5	6	3	4		
A	0.438	0.443		.438	.438				
B	1.745	1.755		1.750	1.750				
C	3.495	3.505		3.500	3.500				
D	1.745	1.755		1.750	1.750				
E	7.990	8.010		8.002	8.002				
F	0.490	0.510		.500	.501				
G	0.257	0.262		.258	.258				
H	0.375	0.380		.375	.375				
I	0.490	0.510		.503	.502				
J	1.174	1.184		1.179	1.179				
K	0.558	0.578		.569	.569				
L	1.174	1.184		1.179	1.179				
M	1.365	1.375		1.370	1.370				
N	2.495	2.505		2.500	2.500				
O	4.119	4.129		4.124	4.124				
P	0.115	0.135		.130	.130				
Q	0.115	0.135		.126	.126				
R	0.240	0.260		.253	.254				
S	0.115	0.135		.128	.127				
T	0.178	0.198		.188	.188				
U	3.210	3.250		3.230	3.230				
V	0.230	0.250		.242	.242				
W	0.115	0.135		.125	.126				
X	0.307	0.312		.311	.311				
Y	0.760	0.765		.760	.760				
Z	0.352	0.372		.364	.365				
AA	0.470	0.530		.500	.500				
AB	0.615	0.635		.625	.625				
AC	0.053	0.073		.063	.063				
AD	0.240	0.260		.253	.253				
AE	1.500	1.520		1.510	1.510				
AF	0.115	0.135		.135	.135				
AG	0.240	0.280		.260	.260				
AH	0.240	0.260		.251	.252				
AI	2.000	2.020		2.000	2.000				
AJ	0.023	0.043		.033	.033				
Accept/Reject									

Measured by: 44
Date: 17-03-31

Audited by: DAS
Date: 49

Rev	Date	Change	Revised by	Approved
B	02.09.27	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	
F	13.03.07	Dwg Rev updated	KJ	

